Cumulative Hazard Assessment for Ambient Air Toxics in Cook County IL and Lake County IN

Participants, scoping, conduct and product

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George Bollweg, PhD

USEPA Reg. 5 Air and Radiation Div.

312-353-5598

bollweg.george@epa.gov

Outline

1. Terminology
2. Cumulative Risk Initiative (CRI) and CRI Cumulative Hazard Assessment: background, participants, scoping, conduct, finish
3. Assessment methods; results not yet public per agreement
4. Preliminary lessons learned
5. Summary

Terminology – project name changes

- 1996-1999: overall 4-part project = Chicago Cumulative Risk Initiative (CCRI)
- 2000: name changed to Cumulative Risk Initiative (CRI) for Cook County IL and Lake County IN
- 2002: new name??

Terminology (ctd.)

Stakeholder - "An interested or affected party in an ongoing or contemplated project (usually involving a group or team planning the project, analyzing one or more problems, and making decisions for possible actions based on the interpretation of that analysis)."

(USEPA Framework for Cumulative Risk Assessment, 4/23/2002 draft)

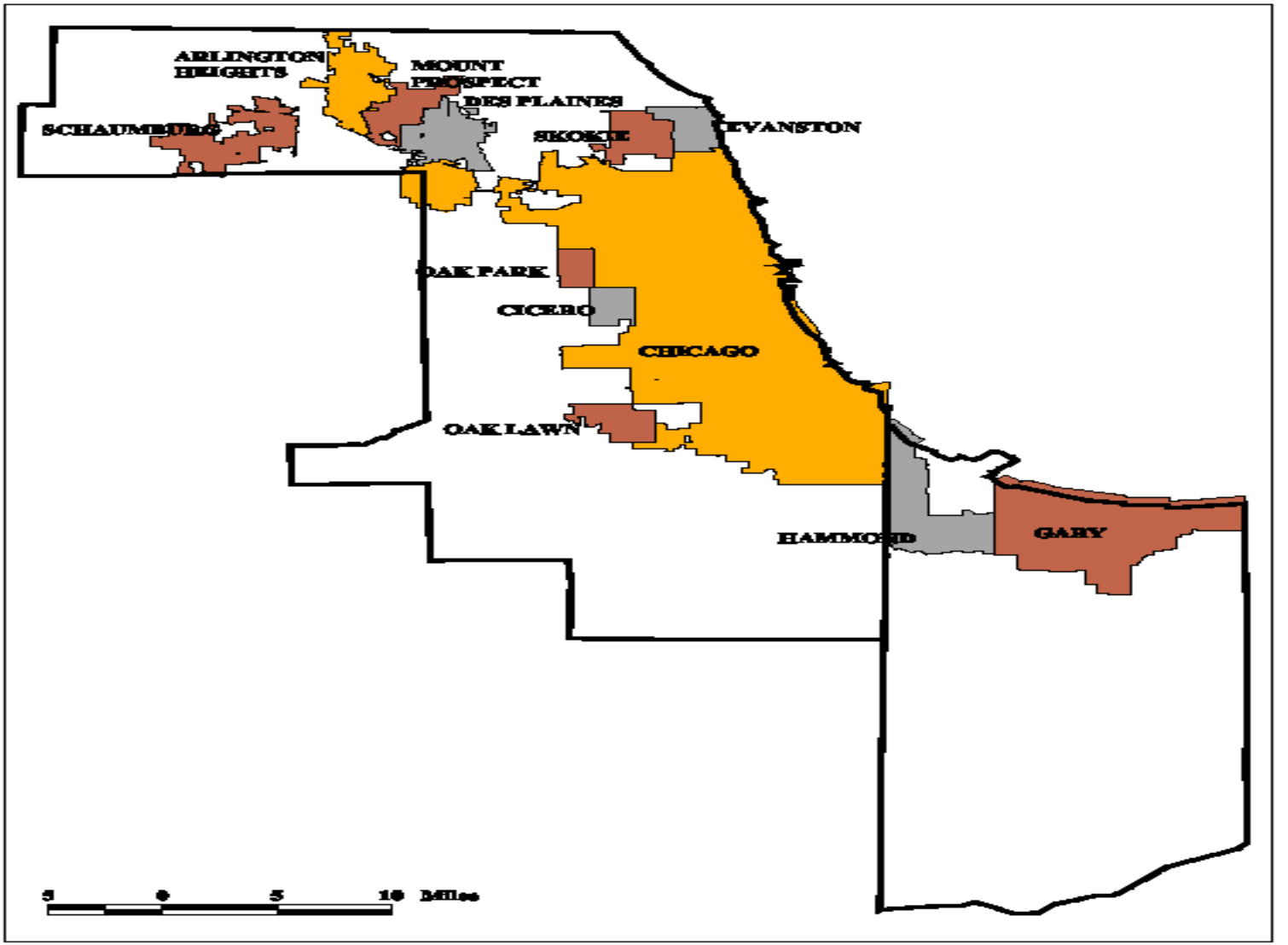
Terminology (ctd.)

Participant - "one that participates" [participate: to take part] (Webster's Ninth New Collegiate Dictionary)

Cumulative Risk Initiative (CRI) background

- CRI resulted from 1995-1996 TSCA Petition to Administrator
- Petition focused on lack of cumulative effects consideration in siting and permitting of multiple incinerators in Cook (IL) and Lake (IN) counties
- Petition denied but USEPA felt issues were compelling, proposed broader project
- 1997 SPC Guidance on Cumulative Risk Planning-Scoping: CRI case study

Study Area



Map 2.1 Municipalities in Cook County, IL and Lake County, IN with Greater than 50,000 Population in 1990

Source: Based on information from U.S. Bureau of the Census.

Petitioner participants (represented by Chicago Legal Clinic)

- People for Community Recovery
- Lake Michigan Federation
- Grand Calumet Task Force
- Center for Neighborhood Technology
- Citizens for a Better Environment
- Southeast Environmental Task Force
- South Cook County Environmental Action Coalition
- Human Action Community Organization
- South Suburban Citizens Opposed to Polluting Our Environment
- Lyons Incinerator Opponent Network
- Westside Alliance for a Safe Toxic-Free Environment

Governmental participants

- Illinois Environmental Protection Agency
- Indiana Department of Environmental Management
- Illinois and Indiana Depts. of Public Health
- City of Chicago
- Cook County
- E. Chicago, IN

USEPA offices:

- Pesticides, Prevention and Toxic Substances
- Planning, Economics and Innovation
- Air Quality Planning and Standards
- Civil Rights
- Research and Development
- Region 5
- Others initially!

Argonne National Laboratory (interagency agreement with USEPA)

Assessment participant process "phases"

- **Early** (scoping) 1996-9: Petitioners, OPPT, OEJ, OA, OGC, OAQPS, OPPE, OSWER, SAB, SPC/ORD, OW, OCR, R5, Argonne, others?
- **Middle** (conduct) 1999-2000: Petitioners, states, locals, OAQPS, OPEI, OCR, Argonne, R5
- **Late** (peer review/finish) 2001-2: external peer reviewers, Argonne, R5, others intermittently

CRI scoping

- Choose cumulative rather than comparative evaluation
- Exclusions: ecological assessment, non-Petitioner public, industry
- Settle on basic structure of study, use 1997 SPC Guidance

CRI components

1. Environmental Loadings Profile (multimedia pollution and emissions inventory)
2. Petitioner workshops and meetings (planning, scoping)
3. **Cumulative ["Hazard"] Assessment**
4. Risk/hazard management response

CRI scoping – from risk to "hazard"

Ultimate interest in "hazard" rather than "risk":

- Petitioners wanted something relevant for entire study area, not one or two neighborhoods
- Forced by resource and information limitations
- Some negative experience with "risk" assessment

Assessment goals

- Better understand environmental conditions in Cook and Lake counties
- Improve stakeholder dialogue
- Develop cumulative assessment methods
- Inform program priorities and resource allocation decisions [use Assessment as **prioritization tool**, not a health evaluation]

Assessment – scoping

- "Early" participant process phase
- Initial focus: cumulative risk assessment
- Later focus: hazard assessment of outdoor "air toxics" (in part due to Loadings Profile results; whole study area, not just 1or 2 neighborhoods; unhappy experience with local risk assessment)

Assessment – scoping (ctd.)

- Rely on already available, “off-the-shelf” information
- Focus on EPA-regulated sources
- Focus on children
- Don’t try to link pollutant and disease information
- Some diseases excluded due to data inacessibility or gaps

Assessment – scoping (ctd.)

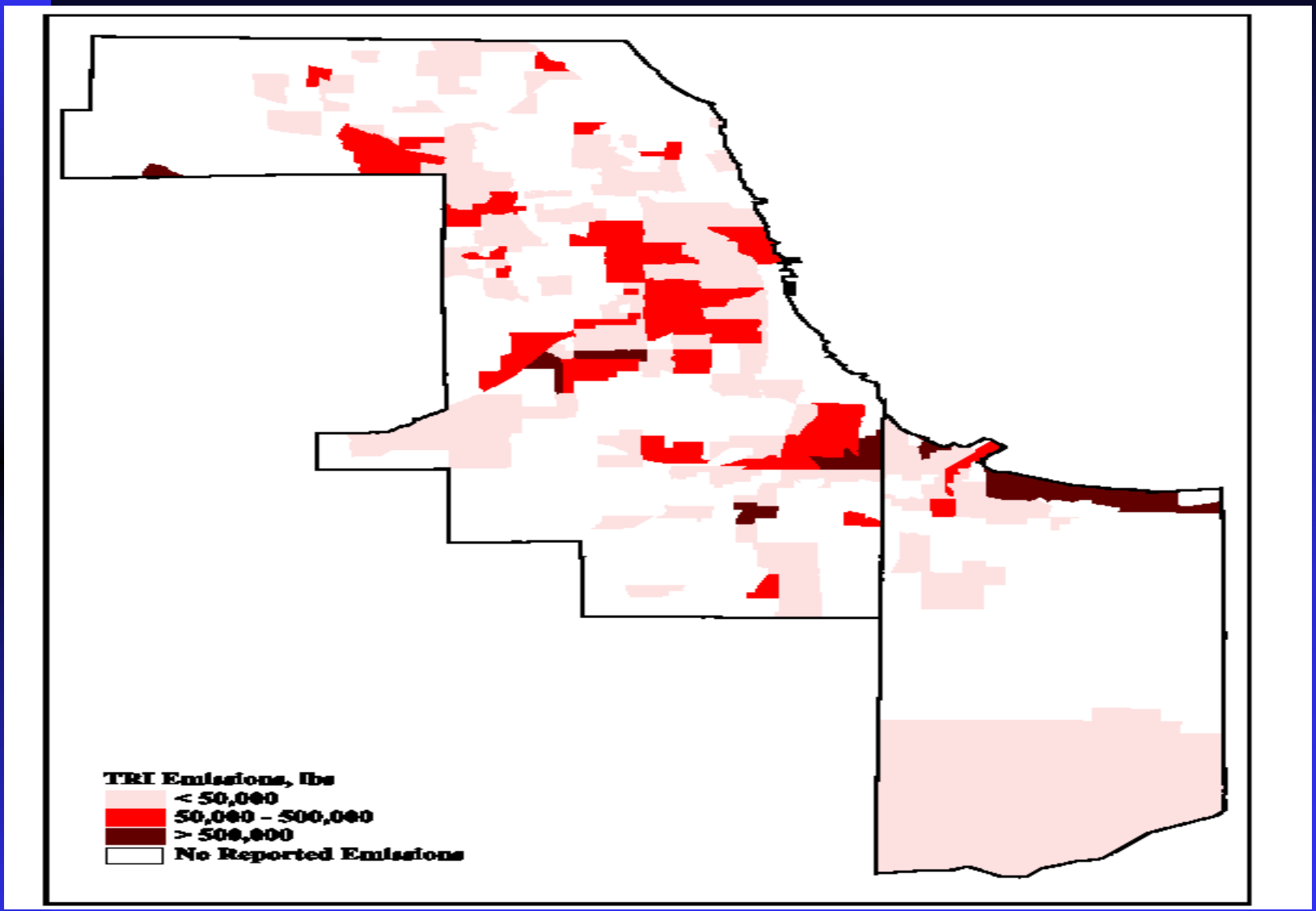
Other excluded topics:

- Human exposure assessment
- Indoor air
- Ingestion and dermal hazard
- Microbial agents
- Genetic susceptibilities
- Lifestyle hazards (e.g. obesity, tobacco, inactivity)
- "Social hazards" (e.g. poverty, lack of healthcare access, violence, "stress")

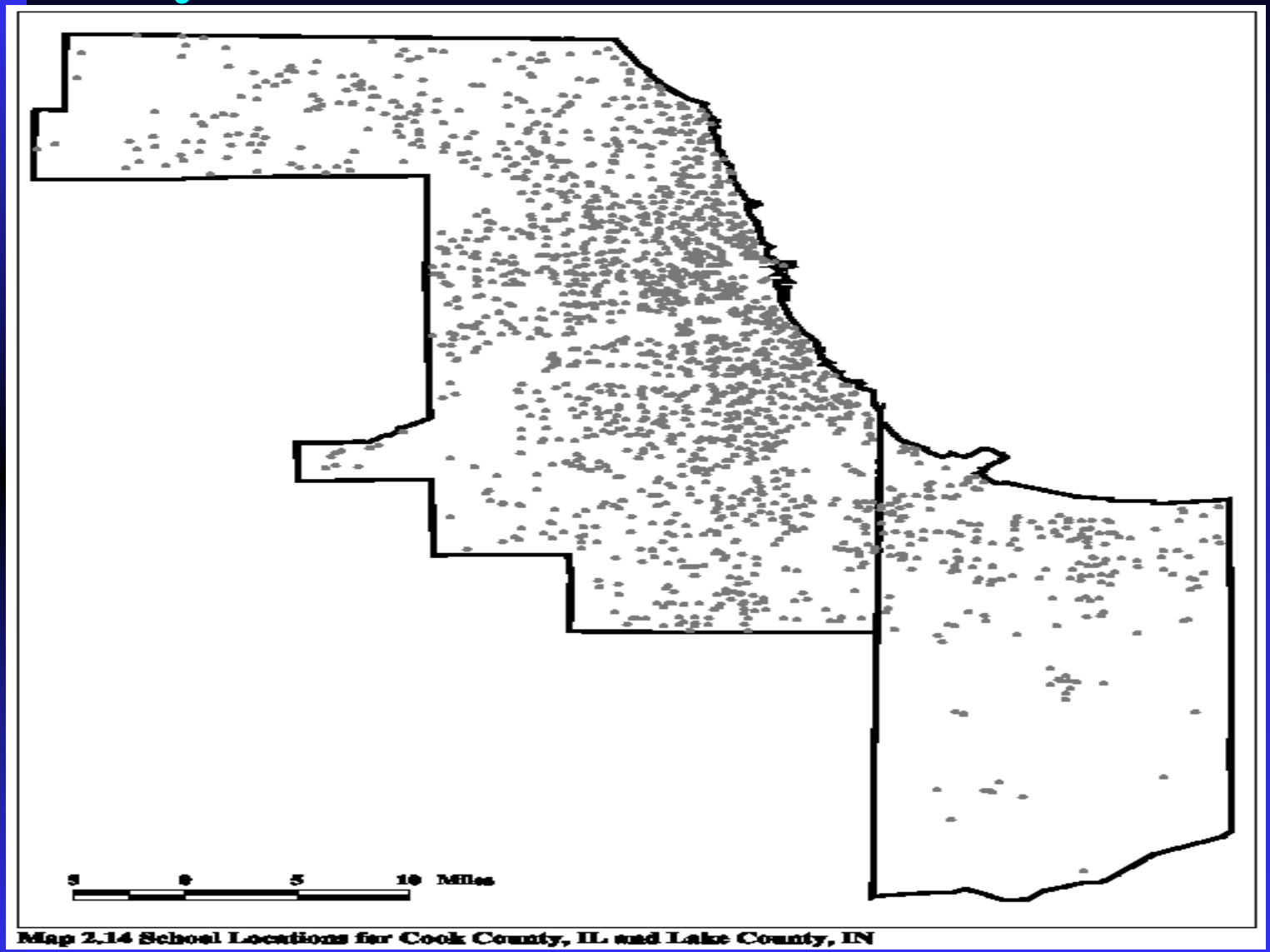
Assessment – scope

- Cumulative human inhalation hazard of USEPA-regulated outdoor air toxics in study area
- Use available, "off-the-shelf" data and information
- Focus on EPA-regulated sources
- Address children's focus indirectly with "overlays" of disease maps, pollution data

Mapped 1996 TRI data



Study area school locations



Map 2.14 School Locations for Cook County, IL and Lake County, IN

Assessment – conduct

- "Middle" participant process phase
- Initial Argonne chapter drafts (n=11)
- Technical Review Workgroup of "middle phase" participants reviewed Argonne drafts
- In-person and conference call reviews for comments on drafts
- Written and discussion comments processed and used by Argonne, R5 workgroup to prepare Assessment peer review draft

Assessment methods

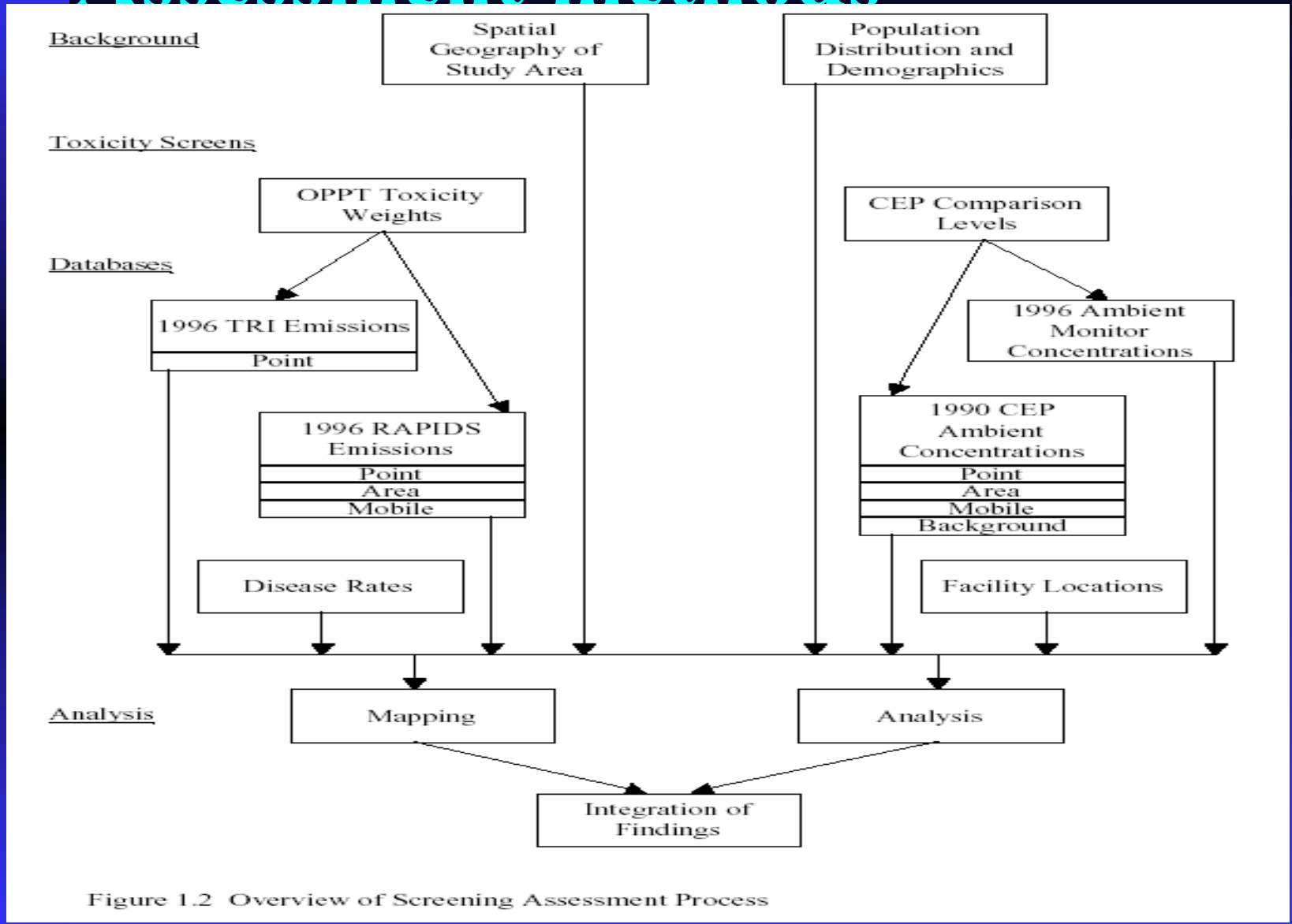


Figure 1.2 Overview of Screening Assessment Process

Assessment results – general format

- Maps - hazard "density" mapped in a geographic area or ranked by pollutant, source sector (point, area, mobile), industrial sector (e.g. primary metals, chemical refineries), some individual point sources
- Figures, pie charts, graphs, tables, etc.

Assessment – peer review

- "Late" participant process phase
- Peer review (PR) draft and charge submitted to external reviewers
- Obtain and discuss preliminary comments; R5-Argonne provide final written input to reviewers, obtain final written PR comments
- Argonne-R5 respond to PR comments, prepare comment-response document & final draft

Assessment – finish

- Develop communication materials (summaries, Q&A, fact sheets)
- Present final Assessment to Programs, R5 management, states, locals; agree on risk/hazard management step(s)
- Print Assessment and present to Petitioners, place on website

How did participants influence CRI scope and direction?

By defining analytic/deliberative parameters:

1. Petitioners identified cumulative assessment issue
2. Non-Petitioner public and industry excluded from process
3. Focus on hazard, not risk; "air toxics" inhalation; children's health
4. Assessment design: "off-the-shelf" information, inclusion of health information not "connected" with pollution; other excluded topics

How did participants influence CRI scope and direction? (ctd.)

Through participant technical review process:

- Much debate; e.g. Assessment objectives; CEP inclusion; age of data; toxicity issues; facility locations
- City of Chicago interest in airports led to reanalysis and remapping of tox-weighted emissions

How did participants influence CRI direction? (ctd.)

Through external peer review process:

- Peer review of "community designed" projects: external reviewers didn't accept all scope decisions and design constraints (charge defect? Technical review/stakeholder-designed project mismatch?)

Some Preliminary Lessons Learned

Deliberative:

- Excluding stakeholders is risky
- Big project, big management needs
- Closure plans helpful?
- Peer review of "stakeholder designs"?

Analytic:

- Long scoping effort narrowed Assessment
- GIS mapping (quartiles; "false precision")
- Data: accuracy; age; gaps

One "take home message" summary:

- Long planning-scoping phase redirected Assessment from risk evaluation to prioritization tool
- Big projects→ big technical and managerial needs
- Matching analysis with large deliberative group's study design: iterative and resource intensive
- "Combining" disparate data and information is difficult – could just presenting it suffice in some cases?